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REVIEW

Examining the relationship between obesity and cognitive function: A systematic literature review

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Summary The increasing prevalence of both obesity and dementia is a significant public health concern, especially as recent research demonstrates a significant relationship between these conditions. However, while there is evidence of an obesity—dementia relationship, the effect of obesity on cognitive function in adults, independent of obesity related comorbidities, remains ambiguous. Furthermore, research is yet to systematically compare evidence for domain specific cognitive deficits in obese adults. A systematic literature review was conducted to assess evidence for domain specific cognitive deficits in obese (BMI > 30 kg/m^2) adults (18—65 years of age) and whether these studies have been able to determine an independent relationship between obesity and cognition over and above relevant comorbidities. Seventeen articles were identified. The literature revealed impairments in obese adults across almost all cognitive domains investigated (e.g. complex attention, verbal and visual memory, decision making). However, numerous methodological limitations were identified which need to be considered in interpretations and conclusions regarding an independent effect. While cognitive impairments in obese adults are evident, as a result of these methodological limitations there is currently insufficient evidence to indicate a reliable and valid independent association between obesity and cognitive impairment in mid-life adults. Further research

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addressing key methodological limitations (e.g. application of relevant exclusions and control variables, use of appropriate comparison groups and measures) is recommended in order to improve understanding of the relationship between mid-life obesity and cognition. Such research will inform the development of appropriate approaches to identification, prevention and treatment of cognitive decline in obese adults.

Contents

Introduction

Obesity is a significant public health concern in Australia, with the proportions of males and females with obesity increasing from 9% to 19% and 10% to 17% respectively between 1989—90 and 2004—05 [1]. It is predicted that this will increase to 38.4% of men and 20.2% of women by 2022 [2]. This is concerning given that obesity is a significant risk factor for conditions such as cardiovascular disease, diabetes, osteoarthritis, various forms of cancer [3] and depression [4]. Many of these obesity-related comorbidities including hypertension [5], elevated triglycerides [6,7] and type 2 diabetes [8] have been associated with cognitive impairment and increased risk of dementia. Moreover, numerous studies have reported mid-life obesity to be a significant risk factor for later-life dementia (including Alzheimer's